Amendments to the Claims

This listing of the claims below will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

1. (canceled) A reductant delivery system, comprising:

an evaporator unit including at least a heating element;

a mixing device having at least one inlet and at least one outlet coupled to said evaporator unit; and

a controller for introducing reductant and air into said mixing device through said inlet, injecting a mixture of said reductant and said air through said outlet into said evaporator unit thereby causing evaporation of said reductant and air mixture.

2. (canceled) The system as set forth in Claim 1 wherein said reductant is hydrocarbon.

3. (canceled) The system as set forth in Claim 1 further comprising a delivery tube for housing said injected reductant and air mixture, wherein said reductant and air mixture evaporates inside said delivery tube without coming into direct contact with a surface of said heating element.

4. (canceled) The system as set forth in Claim 1 wherein said heating element is an electrically heated elongated heater plug.

5. (canceled) The system as set forth in Claim 4 wherein said heater plug is cylindrically shaped.

6. (canceled) The system as set forth in Claim 4 wherein said heater plug is rectangular shaped.

7. (canceled) The system as set forth in Claim 1 wherein said evaporator unit further comprises an oxidation catalyst.

8. (canceled) The system as set forth in Claim 1 wherein said mixing device outlet is configured to inject said mixture of said reductant and said air onto at least two predetermined areas on a surface of said heating element.

9. (canceled) The system as set forth in Claim 8 wherein said controller is further adapted to enable and disable injection of said mixture of said reductant and said air onto said predetermined areas of said heating device.

10. (canceled) A method for vaporizing a substance in a reductant delivery system for an exhaust gas aftertreatment device, the system having at least a heating element, the method comprising:

generating a mixture by mixing a predetermined amount of reductant with a predetermined amount of air; and

injecting said mixture into the reductant delivery system thereby causing said mixture to vaporize.

11. (canceled) The method as set forth in Claim 10 wherein said reductant is hydrocarbon.

12. (canceled) The method as set forth in Claim 10 wherein the exhaust gas aftertreatment device is an Active Lean NOx Catalyst (ALNC).

13. (canceled) The method as set forth in Claim 12 further comprising directing said vaporized mixture into said ALNC.

14. (canceled) A method for controlling a reductant delivery system having at least a heating element, the system coupled upstream of an exhaust gas aftertreatment device of an internal combustion engine in a mobile vehicle, the method comprising:

injecting air into the system;

injecting a reductant into the system thereby creating a vaporized mixture; and

directing said vaporized mixture into the exhaust gas aftertreatment device.

15. (canceled) The method as set forth in Claim 14 wherein said reductant is hydrocarbon.

16. (canceled) The method as said forth in Claim 14 wherein the engine is a diesel engine.

17. (canceled) The method as set forth in Claim 14 wherein the exhaust gas aftertreatment device is an ALNC.

18. (new) A reductant delivery system, comprising:

an evaporator unit including at least a heating element;

a mixing device having at least one inlet and at least one outlet coupled to said evaporator unit;

a controller for introducing reductant and air into said mixing device through said inlet, injecting a mixture of said reductant and said air through said outlet into said evaporator unit thereby causing evaporation of said reductant and air mixture, and

- 5 -
10/786,722

a delivery tube for housing said injected reductant and air mixture, wherein said reductant and air mixture evaporates inside said delivery tube without coming into direct contact with a surface of said heating element.